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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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03/29/2007

Alan Martyn Eddison

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EXAMINER

GOTTLIEB, ELIZABETH C

ART UNIT

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3676

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/576,884	Applicant(s) EDDISON ET AL.	
	Examiner Elizabeth C. Gottlieb	Art Unit 3676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 30 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47, 49, 50, 80, 81 and 83-108 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-47, 49, 50, 80, 81 and 83-108 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Response to Amendment

1. The amendment filed July 30, 2009 has been entered. Claims 1-47, 49-50, 80-81, and 83-108 remain pending in the application. Claims 48, 51-79, and 82 have been cancelled. The previous claim objection has been withdrawn in light of Applicant's cancellation of claim 82.

Specification

2. The abstract of the disclosure is objected to because the abstract should not contain purported merits such as in lines 3-4. Correction is required. See MPEP § 608.01(b).

3. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 1, 3-10, 14-15, 17-36, 42-43, 50, 80-81, and 83-103 are rejected under 35**

U.S.C. 102(b) as being anticipated by Eddison et al. (US Patent No. 6,279,670).

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5. *Regarding claims 1, 50:* Eddison discloses a method and apparatus for running a bore-lining tubing string (**Figure 1, not labeled**) into a bore, the method comprising running a tubing string into a bore while agitating (**Figure 9, via 70**) the string (**column 5, lines 1-6**).

6. *Regarding claims 3-5:* Eddison discloses the agitation of the string at least reduces static friction between the string and the bore wall, reduce gellation of fluid in the bore, and the agitation of the string serves to fluidise sediments lying on the low side of a deviated bore (**The agitator of Eddison will inherently perform these functions**).

7. *Regarding claim 6:* Eddison discloses the tubing string is translated axially (**Eddison discloses a method of drilling and inherently the tubing string is translated axially as the bore is drilled farther**).

8. *Regarding claim 7:* Eddison discloses the tubing string is rotated as it is advanced into the bore (**column 2, lines 5-6**).

9. *Regarding claims 8, 80-81:* Eddison discloses a drill bit (**Figure 1, 5**) is provided at a leading end of the string.

10. *Regarding claims 9, 88:* Eddison discloses at least a leading end of the string is rotated by a downhole motor (**Figure 8, 72**).

11. *Regarding claim 10:* Eddison discloses the string is rotated from surface (**column 2, lines 5-6**).

12. *Regarding claim 14:* Eddison discloses the string is agitated by operation of an agitator (**Figure 8, 70**) in the string.

13. *Regarding claims 15, 83:* Eddison discloses the string is agitated by operation of an agitator (**Figure 8, 70**) towards a leading end of the string (**as depicted in Figure 8**).

14. *Regarding claims 17, 84:* Eddison discloses the agitator is actuated by fluid (**column 5, lines 25-26**).

15. *Regarding claims 18, 85:* Eddison discloses the agitator is actuated by fluid pumped through the tubing string (**Figure 9 depicts fluid flow arrows within the tubing string**).

16. *Regarding claims 19-20, 86-87:* Eddison discloses the agitator is actuated drilling fluid (**column 5, lines 1-3 disclose the apparatus's use in drilling**). The apparatus of Eddison is inherently capable

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of being actuated by both drilling fluid and cement slurry as it is fluid actuated and can be actuated by any fluid.

17. *Regarding claims 21:* Eddison discloses the fluid actuates a downhole motor (**Figure 9, 72**).

18. *Regarding claims 22, 89:* Eddison discloses the fluid actuates a downhole positive displacement motor (**column 5, line 9**), whereby the speed of the motor, and thus the rate of agitation, is controlled by varying the fluid flow rate (**column 5, lines 25-33**).

19. *Regarding claims 23-24, 90-91:* Eddison discloses the agitator includes a valve (**Figure 9, 74**) having an element (**80**) that is moved to vary the dimension of a fluid passage (**84, 86**) and the fluid passage dimension controls flow of fluid through at least a portion of the string (**column 5, lines 20-22**).

20. *Regarding claims 25, 92:* Eddison discloses the fluid passage dimension is varied between a larger open area and a smaller open area (**when 80 and 82 are aligned there is a large open area, when they are misaligned, there is a small open area**).

21. *Regarding claims 26, 93:* Eddison discloses the fluid passage includes a flow passage portion that remains open (**Fluid passage through 84 and 86 always remains open, even when misaligned**).

22. *Regarding claims 27, 94:* Eddison discloses the agitator provides positive pressure pulses in the fluid above the valve and negative pressure pulses in the fluid below the valve (**The device will create positive and negative pulses as claimed as the valve element rotates within the housing**).

23. *Regarding claims 28-29, 95-96:* Eddison discloses the agitator provides pressure pulses which act on a shock tool in the string to axially extend and contract the tool in response to the pressure pulses (**column 5, lines 25-27**) and positive pressure pulses applied to the shock tool (**column 4, lines 47-49**).

24. *Regarding claims 30-31, 97-98:* Eddison discloses wherein the shock tool is provided above and below the agitator (**column 2, lines 24-27**).

25. *Regarding claims 32, 99:* Eddison discloses the agitator comprises a driven valve element (**Figure 9, 80**) which is moved positively to vary the flow passage area (**column 5, lines 20-22**).

26. *Regarding claims 33-34, 100-101:* Eddison discloses the valve element is driven by the rotor (**Figure 9, 78**) of a positive displacement motor (**72**).

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27. *Regarding claims 35, 102:* Eddison discloses the rotor provides rotational movement of the element (**column 5, line 21**).

28. *Regarding claims 36, 103:* Eddison discloses the rotor is of a Moniteau principle motor (**column 5, lines 9-10**) and is directly coupled to the valve member (**via ported connector 88**) and provides both rotational and transverse movement to the valve member (**column 6, claims 4 and 5**).

29. *Regarding claim 42:* Eddison discloses comprising producing pressure pulses in the string (**as described in column 4, lines 1-4**).

30. *Regarding claim 43:* Eddison discloses varying the amplitude of the pressure pulses between at least two predetermined amplitudes (**Figure 5 depicts the flow area and thus amplitude of the pressure pulse operates between two extremes**).

31. **Claim 49 is rejected under 35 U.S.C. 102(b) as being anticipated by Wicks, III et al. (US Patent No. 5,439,290).**

Regarding claim 49: Wicks, III. discloses a method of cementing a bore-lining tubing string in a bore, the method comprising pumping cement into an annulus surrounding the string while applying pressure pulses to the cement (**abstract; column 6, line 10**).

Claim Rejections - 35 USC § 103

32. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

33. **Claims 11-13, 16, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eddison (US Patent No. 6,279,670).**

34. *Regarding claims 11-13:* Eddison does not expressly disclose in excess of 50, 70, and 85 percent of the weight applied to the string is transferred to the leading end of the string.

At the time of the invention, it would have been obvious to a person having ordinary skill in the art to try the method of Eddison with the claimed percentage of applied weight transfer, since it has been

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held that discovering an optimum value of a result effective variable involves only routine skill in the art.

In re Boesch, 617 F.2nd 272, 205 USPQ 215 (CCPA 1980).

35. *Regarding claim 16:* Eddison does not expressly disclose the string is agitated by operation of a plurality of agitators in the string.

At the time of the invention, it would have been obvious to a person having ordinary skill in the art to try the method of Eddison with a plurality of agitators, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. St. Regis Paper Co. vs. Bemis Co., 193 USPQ 8.

36. *Regarding claim 41:* Eddison discloses control of percussion frequency by controlling the flow rate (**column 4, lines 61-64**).

Eddison does not expressly disclose varying the agitation frequency of the string between at least two predetermined agitation frequencies.

At the time of the invention, it would have been obvious to a person having ordinary skill in the art to try the method of Eddison with varying the agitation frequency between any number of agitation frequencies as a matter of design choice based on the desired drilling rate.

37. **Claims 2, 16, 37, 40, 47, 106-108 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eddison (US Patent No. 6,279,670) in view of Solum et al. (US Patent No. 3,557,875).**

38. *Regarding claims 2, 16, 37, 40, 47, 106-108:* Eddison does not expressly disclose the tubing string is the last string of bore-lining tubing to be run into the bore (**claim 2**). Eddison does not expressly disclose cementing the tubing string in the bore while agitating the string and agitating the string after the annulus has been filled with cement with a plurality of agitators (**claims 16, 37, 40**). Eddison does not expressly disclose the apparatus is releasable mounted on a separate string within the tubing string (**claims 47, 106-108**).

Solum discloses the tubing string is the last string of bore-lining tubing to be run into the bore (**casing string 14 is production casing; column 2, line 64**). Solum discloses cementing the tubing string in the bore while agitating the string (**column 3, lines 29-32**) and agitating the string after the annulus has been filled with cement (**column 3, lines 42-46**) with a plurality of agitators in the string

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(Figure 1 depicts multiple vibrators 25; column 3, lines 11-12). Solum also discloses the apparatus is run on a separate string **(Figure 1, drill string 17)** and is releasable mounted in the tubing string **(via releasing tool 18).**

At the time of the invention, it would have been obvious to a person having ordinary skill in the art to try the method and apparatus of Eddison, for use in cementing operations, as taught by Solum, to achieve maximum fill and compaction of the cement in the annulus **(Solum; column 1, lines 11-14).**

39. Claims 38-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eddison (US Patent No. 6,279,670) in view of Walter (US Patent No. 6,053,261).

40. Regarding claims 38-39: Eddison discloses the flow pulser applies negative pressure pulses below the valve element (and thus to fluid flowing into the annulus) **(as the flow area is restricted, pressure will decrease below the valve element).**

Eddison does not expressly disclose cementing the tubing string in the bore while applying pressure pulses to the cement as it flows into and through the annulus.

Walter discloses cementing a tubing string in a wellbore while applying pressure pulses **(abstract; column 6, line 10).**

At the time of the invention, it would have been obvious to a person having ordinary skill in the art to try the method of Eddison, for use in cementing operations, as taught by Walter, to achieve a strong cement bond in the annulus.

41. Claims 44-45, and 104 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eddison (US Patent No. 6,279,670) in view of Wicks, III et al. (US Patent No. 5,361,830).

42. Regarding claims 44-45 and 104: Eddison does not expressly disclose means utilized to agitate the string is left in the bore following cementation of the string in the bore and drilling through said means and drilling the bore beyond the end of the tubing string.

Wicks, III. discloses a tool for vibration of the casing during cementing **(column 5, lines 46-52; Figure 2)** via pressure pulses (where the tool is left in the hole to be milled **(column 7, lines 7-14).**

At the time of the invention, it would have been obvious to a person having ordinary skill in the art to try the method and apparatus of Eddison, for use in cementing operations and with the ability to be

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drilled, as taught by Wicks, III., to achieve a strong cement bond in the annulus and allow for easy removal of the device.

43. Claims 46 and 105 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eddison (US Patent No. 6,279,670) in view of Wicks, III. et al. (US Patent No. 5,361,830) and in further view of Owens et al. (US Patent No. 5,607,017).

44. *Regarding claims 46 and 105:* Eddison, as modified by Wicks, III., does not expressly disclose said means is at least part soluble and the method further comprises passing an appropriate material into the bore to at least weaken the means and then removing the means from the bore.

Owens discloses a dissolvable well tool (**Figure 1, 16**) dissolvable by a fluid (**18; column 2, lines 44-45**).

At the time of the invention, it would have been obvious to a person having ordinary skill in the art to try the method and apparatus of Eddison, as modified by Wicks, III., with a soluble material, as taught by Owens, to achieve easy removal of the tool from the well with circulation of the dissolving fluid.

Response to Arguments

45. Applicant's arguments filed July 30, 2009 have been fully considered but they are not persuasive.

46. *Regarding claims 1 and 50:* Applicant states "Eddison discloses a 'drill string' used for drilling a bore. In contrast, a 'tubing string' is generally placed into a completed bore section to create a metallic tubing lining and is not used for *drilling* a bore."

The term "tubing string" is considered to be a generic term encompassing all forms of tubing that can be found in a well. The Society of Petroleum Engineers defines tubing to be "typically the smaller, inner string of pipe in a well that is primarily used for a fluid flow path". The drill string disclosed by Eddison is used as a fluid flow path to direct drilling fluids downhole and thus falls within the limits of the SPE definition. Furthermore, Applicant's own specification discloses "In some cases, the string may be provided with a drill bit" (page 4, line 14) and Figure 1 depicts the tubing string (10) with a drill bit (22), thus making it a drilling string.

47. Applicant further states "Eddison does not disclose agitating the string 'to reduce friction between the string and the bore wall and facilitate the translation of the string into the bore.' In contrast,

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Eddison discloses providing 'a percussive or hammer action to assist in drilling in hard rock', the percussive or hammer action being applied to a drill bit in contact with a cutting face."

As noted in paragraph 4 of the Office Action dated April 30, 2009, Eddison discloses agitating the string with a shock sub (column 5, lines 1-6). It should be noted that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Therefore, Eddison reference is capable of facilitating the translation of the string into the bore, as claimed, since the reference discloses agitation of the string through a shock sub.

48. *Regarding claim 49:* Applicant states "Wicks fails to disclose a method of cementing a bore-lining tubing string in a bore comprising 'pumping cement into an annulus surrounding the string while applying *pressure pulses* to the cement'".

As Applicant notes, Wicks discloses vibrating the casing and fluid within the wellbore. Vibration of the casing would affect both the flow and pressure of the fluid in the surrounding well and would create pulses within the cement. It is immaterial that Wick does not disclose these assist in "displacing drilling fluid and other deposits from the annulus" (Applicant's remarks page 12) since this limitation is not claimed and furthermore since the method of Wicks would be capable of this limitation (if later claimed) due to the vibration of the fluid and casing.

49. *Regarding claims 11-13, 16, and 41:* Applicant has failed to argue these claims as being obvious over Eddison. Therefore, Applicant has conceded that the claimed percentage of weight transfer, number of agitators, and agitation frequency are merely design choice and as such are considered to be admitted prior art.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date

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of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth C. Gottlieb whose telephone number is (571)270-5566. The examiner can normally be reached on Monday - Thursday, 9am - 3pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer Gay can be reached on 571-272-7029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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